

CLAIMS

1. (Original) A positioning system for determination a position of wireless station that is an object of positioning using measuring a communication situation between a said wireless station that is an object of positioning and each of a plurality of wireless stations other than said wireless station that is an object of positioning, characterized in including:

a database having identification information of said wireless station that is an object of positioning, or identification information of said plurality of said wireless stations and necessary measurement number-of-times conclusion information for drawing a conclusion on a measurement number of times stored correspondingly to each other, said necessary measurement number-of-times conclusion information derived from a characteristic of said wireless station that is an object of positioning, or a characteristic of said plurality of said wireless stations, or a characteristic of a combination of said wireless station that is an object of positioning and said plurality of said wireless stations; and

a means for receiving identification information of said wireless station that is an object of positioning, or identification information of said plurality of said wireless stations, for retrieving necessary measurement number-of-times conclusion information corresponding to this identification

information from said database, and for deciding the measurement number of times based upon this necessary measurement number-of-times conclusion information.

2-21 Cancelled.

22. (Original) A positioning system for measuring a communication situation between a wireless station that is an object of positioning and each of a plurality of wireless stations other than said wireless station that is an object of positioning, thereby to specify a position of said wireless station that is an object of positioning, characterized in including a means for deciding a measurement number of times of the communication situation based upon a characteristic of said wireless station that is an object of positioning, or a characteristic of said plurality of said wireless stations, or a characteristic of a combination of said wireless station that is an object of positioning and said plurality of said wireless stations.

23. (Original) A positioning server for deciding a measurement number of times of a communication situation in a positioning system for measuring a communication situation between a wireless station that is an object of positioning and each of a plurality of wireless stations other than said wireless station that is an object of positioning, thereby to specify a position of said

wireless station that is an object of positioning, characterized in including:

a database having identification information of said wireless station that is an object of positioning, or identification information of said plurality of said wireless stations and necessary measurement number-of-times conclusion information for drawing a conclusion on the measurement number of times stored correspondingly to each other, said necessary measurement number-of-times conclusion information derived from a characteristic of said wireless station that is an object of positioning, or a characteristic of said plurality of said wireless stations, or a characteristic of a combination of said wireless station that is an object of positioning and said plurality of said wireless stations; and

a means for receiving identification information of said wireless station that is an object of positioning, or identification information of said plurality of said wireless stations, for retrieving necessary measurement number-of-times conclusion information corresponding to this identification information from said database, and for deciding the measurement number of times based upon this necessary measurement number-of-times conclusion information.

24. (Original) A positioning server for deciding a measurement number of times of a communication situation in a positioning

system for measuring a communication situation between a wireless station that is an object of positioning and each of a plurality of wireless stations other than said wireless station that is an object of positioning, thereby to specify a position of said wireless station that is an object of positioning, characterized in including:

a database having a first table, said first table having identification information of said wireless station and group information, being information associated with a group of which a characteristic resembles that of the wireless station, caused to correspond to each other, and a second table filed, said second table having said group information and necessary measurement number-of-times conclusion information caused to correspond to each other, filed; and

a means for receiving identification information of said wireless station that is an object of positioning, or identification information of said plurality of said wireless stations, for retrieving group information corresponding to this identification information from said first table, for retrieving necessary measurement number-of-times conclusion information corresponding to this group information from said second table, and for deciding the measurement number of times based upon this necessary measurement number-of-times conclusion information.

25-37 Cancelled

38. (Original) A program for causing an information processing unit to perform a process of deciding a measurement number of times of a communication situation in a positioning system for measuring a communication situation between a wireless station that is an object of positioning and each of a plurality of wireless stations other than said wireless station that is an object of positioning, thereby to specify a position of said wireless station that is an object of positioning, characterized in causing said information processing unit to function as a means for receiving identification information of said wireless station that is an object of positioning, or identification information of said plurality of said wireless stations, for retrieving necessary measurement number-of-times conclusion information corresponding to the received identification information from a database having identification information of said wireless station that is an object of positioning, or identification information of said plurality of said wireless stations and necessary measurement number-of-times conclusion information for drawing a conclusion on the measurement number of times stored correspondingly to each other, said necessary measurement number-of-times conclusion information derived from a characteristic of said wireless station that is an object of positioning, or a characteristic of said plurality of said wireless stations, or a characteristic of a

combination of said wireless station that is an object of positioning and said plurality of said wireless stations, and for deciding the measurement number of times based upon this necessary measurement number-of-times conclusion information.

39. (Original) A program for causing an information processing unit to perform a process of deciding a measurement number of times of a communication situation in a positioning system for measuring a communication situation between a wireless station that is an object of positioning and each of a plurality of wireless stations other than said wireless station that is an object of positioning, thereby to specify a position of said wireless station that is an object of positioning, characterized in causing said information processing unit to function as a means for receiving identification information of said wireless station that is an object of positioning, or identification information of said plurality of said wireless stations, for retrieving group information corresponding to this identification information from a table having said identification information of said wireless station and group information, being information associated with a group of which a characteristic resembles that of the wireless station, caused to correspond to each other, retrieving necessary measurement number-of-times conclusion information corresponding to this group information from a table having said group information and the necessary measurement number-of-times conclusion

information caused to correspond to each other, and for deciding the measurement number of times based upon this necessary measurement number-of-times conclusion information.

40. (Original) The program according to claim 39, characterized in that said group information is at least one of a model number of the wireless station, a model number of an IC for wireless communication mounted onto the wireless station, manufacturer information of an IC for wireless communication mounted onto the wireless station, and wireless communication technique information to which the IC for wireless communication mounted onto the wireless station corresponds.

41. (Original) The program according to claim 39, characterized in causing said information processing unit to function as a means for acquiring MIB information, thereby to acquire said group information.

42. (Original) The program according to claim 39, characterized in that said necessary measurement number-of-times conclusion information is a measurement number of times.

43. (Original) The program according to claim 39, characterized in that said necessary measurement number-of-times conclusion information is a standard deviation of a dispersion in an internal

process delay in the wireless station that is an object of positioning or the other wireless station.

44. (Original) The program according to claim 39, characterized in causing the information processing unit to function as a means for updating the necessary measurement number-of-times conclusion information of the database based upon an acquired measurement result.

45. (Original) The program according to claim 39, characterized in causing the information processing unit to function as a means for performing an operational process weighted with a total measurement number of times for the necessary measurement number-of-times conclusion information and a measurement result, thereby to update the necessary measurement number-of-times conclusion information of the database.

46. (Original) The program according to claim 39, characterized in causing the information processing unit to function as a means for performing an operational process weighted with a total measurement number of times for the necessary measurement number-of-times conclusion information, an acquired measurement result, and a past measurement result, thereby to update the necessary measurement number-of-times conclusion information of the database.

47. (Original) The program according to claim 39, characterized in that said measurement of said communication situation is a measurement of a radio wave propagation time.

48. (Original) The program according to claim 39, characterized in that the information processing unit has a connection with each of said plurality of said wireless stations via a network.

49. (Original) The program according to claim 39, characterized in that said necessary measurement number-of-times conclusion information is information prepared by taking into consideration a characteristic of the wireless station that is an object of positioning, or a characteristic of the wireless station other than the wireless station that is an object of positioning, or a characteristic of a combination of said wireless station that is an object of positioning and the wireless station other than said wireless station that is an object of positioning, and a positioning quality that is requested.

50. (Original) The program according to claim 49, characterized in that said quality of said positioning is positioning precision information.

51. (Original) The program according to claim 49, characterized in that said quality of said positioning is use application information.

52. (Original) The program according to claim 39, characterized in that said identification information of said wireless station is at least one of a person name using the wireless station, a personal ID of a person using the wireless station, an appliance name registered to a wireless station appliance, an MAC address of the wireless station, an IP address of the wireless station, and an arbitrary ID allocated to the wireless station.

53. (Original) A method of deciding a measurement number of times in a positioning system for measuring a communication situation between a wireless station that is an object of positioning and each of a plurality of wireless stations other than said wireless station that is an object of positioning, thereby to specify a position of said wireless station that is an object of positioning, characterized in including a step of deciding the measurement number of times of the communication situation based upon a characteristic of said wireless station that is an object of positioning, or a characteristic of said plurality of said wireless stations, or a characteristic of a combination of said wireless station that is an object of positioning and said plurality of said wireless stations.

54. (Original) The method of deciding the measurement number of times according to claim 53, characterized in including the steps of:

pre-storing identification information of said wireless station that is an object of positioning, or identification information of said plurality of said wireless stations, and necessary measurement number-of-times conclusion information for drawing a conclusion on the measurement number of times correspondingly to each other, said necessary measurement number-of-times conclusion information derived from the characteristic of said wireless station that is an object of positioning, or the characteristic of said plurality of said wireless stations, or the characteristic of a combination of said wireless station that is an object of positioning and said plurality of said wireless stations; and

retrieving necessary measurement number-of-times conclusion information corresponding to the received identification information of the wireless station that is an object of positioning, or to the received identification information of the plurality of the wireless stations to decide the measurement number of times based upon this necessary measurement number-of-times conclusion information.

55. (Original) The method of deciding the measurement number of times according to claim 53, characterized in including the steps of:

pre-storing identification information of the wireless station and the necessary measurement number-of-times conclusion information via group information, being information associated with a group of which the characteristic resembles that of the wireless station, correspondingly to each other; and

retrieving necessary measurement number-of-times conclusion information corresponding to the received identification information of the wireless station that is an object of positioning, or to the received identification information of the plurality of the wireless stations via the group information to decide the measurement number of times based upon this necessary measurement number-of-times conclusion information.

56. (Original) The method of deciding the measurement number of times according to claim 55, characterized in that said group information is at least one of a model number of the wireless station, a model number of an IC for wireless communication mounted onto the wireless station, manufacturer information of an IC for wireless communication mounted onto the wireless station, and wireless communication technique information to which the IC for wireless communication mounted onto the wireless station corresponds.

57. (Original) The method of deciding the measurement number of times according to claim 55, characterized in including a step of acquiring MIB information, thereby to acquire said group information.

58. (Original) The method of deciding the measurement number of times according to claim 53, characterized in that said necessary measurement number-of-times conclusion information is a measurement number of times.

59. (Original) The method of deciding the measurement number of times according to claim 53, characterized in that said necessary measurement number-of-times conclusion information is a standard deviation of a dispersion in an internal process delay in the wireless station that is an object of positioning or the other wireless station.

60. (Original) The method of deciding the measurement number of times according to claim 53, characterized in including a step of updating the necessary measurement number-of-times conclusion information based upon an acquired measurement result.

61. (Original) The method of deciding the measurement number of times according to claim 60, characterized in including a step of

performing an operational process weighted with a total measurement number of times for the necessary measurement number-of-times conclusion information and the measurement result, thereby to update the necessary measurement number-of-times conclusion information.

62. (Original) The method of deciding the measurement number of times according to claim 61, characterized in including a step of performing an operational process weighted with a total measurement number of times for the necessary measurement number-of-times conclusion information, the acquired measurement result, and a past measurement result, thereby to update the necessary measurement number-of-times conclusion information.

63. (Original) The method of deciding the measurement number of times according to claim 53, characterized in that said measurement of said communication situation is a measurement of a radio wave propagation time.

64. (Original) The method of deciding the measurement number of times according to claim 53, characterized in that said plurality of said wireless stations perform said measurement of said communication situation.

65. The method of deciding the measurement number of times according to claim 53, characterized in that said wireless station that is an object of positioning performs said measurement of said communication situation.

66. (Original) The method of deciding the measurement number of times according to claim 53, characterized in that said wireless station performing said measurement of said communication situation is a wireless base station.

67. (Original) The method of deciding the measurement number of times according to claim 53, characterized in that said wireless station performing said measurement of said communication situation is a wireless terminal station.

68. (Original) The method of deciding the measurement number of times according to claim 53, characterized in that said decision of the measurement number of times of said communication situation is performed by a positioning server having a connection with each of said plurality of said wireless stations via a network.

69. (Original) The method of deciding the measurement number of times according to claim 53, characterized in that said decision of the measurement number of times of said communication situation is performed by said plurality of said wireless stations.

70. (Original) The method of deciding the measurement number of times according to claim 53, characterized in that said decision of the measurement number of times of said communication situation is performed by said wireless station that is an object of positioning.

71. (Original) The method of deciding the measurement number of times according to claim 53, characterized in that said necessary measurement number-of-times conclusion information is information prepared by taking into consideration the characteristic of the wireless station that is an object of positioning, or the characteristic of the wireless station other than the wireless station that is an object of positioning, or the characteristic of a combination of said wireless station that is an object of positioning and the wireless station other than said wireless station that is an object of positioning, and a positioning quality that is requested.

72. (Original) The method of deciding the measurement number of times according to claim 71, characterized in that said quality of said positioning is positioning precision information.

73. (Original) The method of deciding the measurement number of times according to claim 71, characterized in that said quality of said positioning is use application information.

74. (Original) The method of deciding the measurement number of times according to claim 53, characterized in that said identification information of said wireless station is at least one of a person name using the wireless station, a personal ID of a person using the wireless station, an appliance name registered to a wireless station appliance, an MAC address of the wireless station, an IP address of the wireless station, and an arbitrary ID allocated to the wireless station.

75. (Original) A positioning system for measuring a communication situation between a wireless station that is an object of positioning and each of a plurality of wireless stations other than said wireless station that is an object of positioning, thereby to specify a position of said wireless station that is an object of positioning, characterized in including a means for, based upon a set measurement number of times and a measurement result based upon said set measurement number of times, obtaining a new measurement number of times to performing the positioning again by this measurement number of times.

76. (Original) A method of deciding a measurement number of times in a positioning system for measuring a communication situation between a wireless station that is an object of positioning and each of a plurality of wireless stations other than said wireless station that is an object of positioning, thereby to specify a position of said wireless station that is an object of positioning, characterized in including a step of, based upon a set measurement number of times and a measurement result based upon said set measurement number of times, deciding a new measurement number of times.

77. (Original) A positioning server, characterized in:

based upon a measurement result of a communication situation between each of a plurality of wireless stations having a connection therewith and a wireless station that is a subordinate of said plurality of said wireless stations, specifying a position of said wireless station that is an subordinate; and

deciding a measurement number of times of the communication situation based upon a characteristic of said wireless station that is an subordinate, or a characteristic of said plurality of said wireless stations, or a characteristic of a combination of said wireless station that is an subordinate and said plurality of said wireless stations.

78. (Original) A wireless station, characterized in:

receiving a positioning request including information associated with a characteristic of a wireless station that is a subordinate from a server having a connection therewith to measure a distance with said wireless station that is a subordinate, and to send this measured distance to said server in which a position of a terminal, being a subordinate, is specified; and

deciding a measurement number of times of said distance based upon said characteristic of said wireless station that is a subordinate.

79. (Original) A wireless station, characterized in:

receiving a positioning request from a server, said positioning request from said server including a characteristic of its own wireless station and a requested positioning quality, to measure distances with a plurality of the wireless stations each of which is a connection destination, to send said measured distances to said server having a connection with said plurality of said wireless stations, in which a position of its own wireless station is specified: and

deciding a measurement number of times of said distance based upon said characteristic of its own wireless station and said requested positioning quality.